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Selection Committee
ACS 1962 Medal
Australian Computer Society

Subject: Supervisory Endorsement for **Dr. Kulsoom Saima Bughio's Nomination – ACS 1962 Medal**

Dear Members of the Selection Committee,

It is with great pride that I endorse the nomination of ***Dr. Kulsoom Saima Bughio*** for the prestigious ACS 1962 Medal in recognition of her PhD thesis, *"IoMT Security: A Semantic Framework for Vulnerability Detection in Remote Patient Monitoring"*, completed at Edith Cowan University in 2024.

Dr. Bughio's thesis makes a substantial and original contribution to the security of the Internet of Medical Things (IoMT), a domain of increasing importance given the reliance on connected medical devices for remote patient monitoring (RPM). Her research developed a novel semantic framework that addresses interoperability, heterogeneity, and integration challenges through meaningful data aggregation, enabling real-time vulnerability detection by integrating IoMT device data with the National Vulnerability Database (NVD). The framework also supports knowledge graph visualization, semantic enrichment, and advanced querying, enhancing decision-making and strengthening the security of healthcare systems.

The methodological innovation and interdisciplinary nature of the thesis set it apart. By integrating semantic web technologies, ontology design, generative artificial intelligence, rule-based reasoning, and cyber threat intelligence, Dr. Bughio has advanced both theoretical knowledge and practical tools for securing critical healthcare infrastructure.

Throughout her candidature, Dr. Bughio demonstrated exceptional independence, intellectual leadership, and scholarly impact. She consistently produced high-quality research outputs, and disseminated her findings in journals and conferences. Her ability to translate complex theories into practical applications highlights the transformative value of her work.

In my professional judgment, Dr. Bughio's thesis represents one of the finest doctoral contributions in ICT research and is a truly deserving candidate for the ACS 1962 Medal. I strongly recommend her for this distinguished honour.

Sincerely,
Dr Syed Afaq Ali Shah
Edith Cowan University
Joondalup, WA, 6027